

I. 35 U.S.C. § 103 Rejections**a) APAF1 in view of Ishiyama et al.**

The Office Action rejected claims 1-18, 23-31 under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Prior Art Figure 1 (APAF1) in view of Ishiyama et al. (U.S. Patent No. 5,627,457). The Office Action states that APAF1 discloses a ROM device having a temperature compensation circuit comprising a feedback resistor in which the conductivity is responsive to changes in temperature and a voltage coupled to input word lines (28). The Office Action goes on to state that the ROM in APAF1 uses a plurality of data resistors (30) to connect the plurality of input lines and output lines (40). The Office Action states that APAF1 does not disclose a constant current source coupled to at least one reference resistor and a switch. The Office Action, however, relies on Ishiyama et al, Fig. 5, disclosing a constant current source (8) coupled to a reference resistor (11) and switches (9).

The proposed combination, however, does not teach each element recited in claim 1. Claim 1 recites a temperature compensation circuit in a ROM to maintain a current through a selected one of a plurality of data resistors substantially constant, comprising at least one reference resistor, wherein the conductivity of said reference resistor is responsive to changes in temperature. A constant current source coupled to the at least one reference resistor develops a voltage across the at least one reference resistor. At least one switch connected to the reference resistor selectively couples said voltage to a plurality of input word lines, wherein the ROM device uses the plurality of data resistors to interconnect the plurality of input word lines with a plurality of output bit lines.

First, the proposed combination does not teach "wherein the conductivity of said reference resistor is responsive to changes in temperature." APAF1 does not teach this feature,

because there is no recited reference resistor in APAF1. As applicant explained in the remarks of September 25, 2002, the feedback resistor is not the reference resistor as recited in claim 1. The Office Action relies on the resistor 11 in Ishiyama as the reference resistor. However, the resistance or conductivity of the resistor 11 has nothing to do with temperature changes. The temperature compensation effect, as the Office Action asserted, is due to the negative temperature characteristic of the MOS transistor. See col. 21, lines 53-54. Therefore, even if APAF1 is combined with Ishiyama, the reference resistor as recited in claim 1 is not disclosed.

Second, the proposed combination does not teach “at least one switch connected to said at least one reference resistor to selectively couple said voltage to a plurality of input word lines.” The Office Action states that APAF1 does not disclose the switch. At 3. The Office Action, however, relies on Ishiyama, Fig. 5, disclosing switches (9). But switches (9) do not selectively couple a reference voltage to the input line of the device, because the reference voltage is always present at the input of the device. See Fig. 3 and the corresponding descriptions. Switches (9) are only used for providing the variable voltage V_y by changing the current I_{10} . See col. 17, lines 56-65 and col. 18, lines 39-54. Thus, the regulated voltage V_{reg} that is an output of the voltage regulation portion is supplied to the drive signal generation portion 142. See col. 19, 63-64.

Third, the proposed combination does not teach “to maintain a current through a selected one of a plurality of data resistors substantially constant” as recited in claim 1. APAF1 does not teach this feature. See originally submitted specification, on page 4, lines 6-10. Ishiyama also does not teach this feature. Rather, the magnitude of the current flowing from the constant-current source 8 to the resistor 10 is controlled on the basis of the regulated-voltage setting signals, and voltage regulation is performed by changing this current magnitude. See col. 17,

lines 33-40. The Office Action fails to explain how the combination of APAF1 and Ishiyama would produce a substantially constant current through the data resistors.

In view of the above, claim 1 is patentable over APAF1 in view of Ishiyama. Claims 2-18 depend from independent claim 1, directly or indirectly, and are patentable for at least the reasons stated above with respect to claim 1.

With respect claim 23, the proposed combination clearly does not disclose “to maintain a current through a selected one of a plurality of data resistors substantially constant ... at least one switch connected to said at least one voltage source to selectively couple said voltage to a plurality of input word lines.” Applicant repeats the same remarks made with respect to claim 1, as these remarks are applicable in response to the rejection of claim 23. Claims 24-31, depend from independent claim 23, directly or indirectly, and are patentable for at least the reasons stated above with respect to claim 23.

b) APAF1, Suzuki and Ishiyama References

The Office Action rejected claims 19-22, 32 and 33 under 35 U.S.C. 103(a) as being unpatentable over the Applicant’s Prior Art Figure 1 (APAF1) in view of Suzuki et al. (U.S. Patent No. 5,544,000) and Ishiyama et al. The Office Action indicates that each step of claim 19 is disclosed by the combination of these three references.

The proposed combination of the three references, however, does not teach each element recited in claim 19. Claim 19 recites a method to maintain a current through Read-Only Memory (ROM) substantially constant as temperature changes, comprising the steps of selecting a reference resistor wherein said ROM employs a plurality of data resistors to provide electrical interconnections between a plurality of input lines and output lines and a change in electrical conductive properties of said reference resistor matches a change in electrical conductive

properties of said data resistors; supplying a reference voltage to said input lines, said reference voltage developed by supplying a constant current to said reference resistor, wherein said reference voltage is responsive to a change in temperature.

First, the proposed combination does not teach “supplying a constant current to said reference resistor.” The Office Action states that APAF1 does not teach supplying a constant current to the reference resistor. At 4. The Office Action, however, relies on Suzuki et al, col. 6, lines 20-35, disclosing a method of maintaining a constant current by supplying a reference voltage to input lines. It is clear that the constant current in Suzuki et al. is fed to the Hall element 8a, which is not the reference resistor. See col. 6, lines 33-35. Ishiyama does not teach this feature either because magnitude of the current flowing from the constant-current source 8 to the resistor 10 is varied. See col. 17, lines 33-40. In fact, the Office Action notes, “Ishiyama et al. discloses switches (9) connected to a constant current source (8) to vary the current and regulate the generated voltage.” At 4-5 (emphasis added). Therefore, none of the cited references disclose supplying a constant current to said reference resistor.

Second, the proposed combination does not teach the limitation “to maintain a current through Read-Only Memory (ROM) substantially constant as temperature changes” as recited in claim 19. APAF1 does not teach this feature. See originally submitted specification, on page 4, lines 6-10. Ishiyama does not teach this feature, either. The Office Action states, “Ishiyama et al. discloses switches (9) connected to a constant current source (8) to vary the current and regulate the generated voltage.” At 4-5. As stated earlier, the constant current in Suzuki et al. is fed to the Hall element 8a, which is not through a ROM. See col. 6, lines 33-35. Therefore, none of the cited references disclose maintaining a substantially constant current through Read-Only Memory.

Furthermore, the three references cannot be combined, as suggested by the Office Action, because such a combination would render the system inoperative. Suzuki is relied upon as providing a constant current to the temperature compensation circuit in APAF1. At 4. The Office Action goes on to state, "it would have been obvious to add switches to the circuit as taught by Ishiyama." At 5. However, the switches in Ishiyama are used for regulating the voltage by varying the current. At 5. See also col. 17, lines 33-40. The required changes of the current in Ishiyama is in contradiction to the cited purpose of providing a constant current in Suzuki. One operation would render the other inoperative.

In view of the above, claim 19 is patentable over APAF1 in view of Suzuki and Ishiyama.

With respect claim 32, the proposed combination clearly does not disclose the limitation "to maintain a current through Read-Only Memory (ROM) substantially constant as temperature changes ... to maintain said current through said data resistors substantially constant" as recited in claim 32. Applicant repeats the same remarks recited in regard to claim 19, as these remarks are applicable in response to the rejection of claim 23.

Claims 20-22 and 33, depend from independent claims 19 and 32, respectively, are patentable for the reasons stated above with respect to claims 19 and 32.

II. Summary

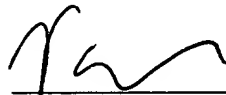
Having fully addressed the Examiner's objections and rejections, it is believed that in view of the preceding remarks, this entire application stands in a condition for allowance. If, however, the Examiner is of the opinion that such action cannot be taken, he is invited to contact the applicants' attorney at the number and address below in order that any outstanding issues may be resolved without the necessity of issuing a further Action. An early and favorable response is earnestly solicited.

Please address all future correspondence to Intellectual Property Docket Administrator, Gibbons, Del Deo, Dolan, Griffinger & Vecchione, One Riverfront Plaza, Newark, NJ 07102-5497. Telephone calls should be made to Vincent E. McGeary at (973) 596-4837 or (973) 596-4500.

III. Fees

If any additional fees are due in respect to this amendment, please also charge them to Deposit Account No. 03-3839.

Respectfully submitted,



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